

CERAMIC PART HAVING AN INSULATING LAYER AFFIXED THERETO AND
METHOD FOR MAKING SAME

ABSTRACT

[0042] Disclosed herein is a ceramic part, gas sensor, and method for making the gas sensor. The ceramic part comprises: an insulating layer affixed to a substrate wherein the insulating layer comprising Al_2O_3 particles; and a glass comprising about 45 to about 69 mole percent SiO_2 , 0 to about 9 mole percent B_2O_3 , 0 to about 26 mole percent Al_2O_3 , 0 and 25 mole percent SrO , and about 10 to about 26 mole percent RE_2O_3 , where RE_2O_3 is selected from the group consisting of Y_2O_3 , three valent rare earth oxides, and combinations comprising at least one of the foregoing.

[0043] In one embodiment of a ceramic part, a gas sensor comprises: an electrolyte layer having disposed on opposite sides thereof a first electrode and a second electrode; and an insulating layer that is in intimate contact with the second electrode, wherein the insulating layer comprises alumina and frit.

[0044] The method of making the gas sensor comprises: disposing a first electrode and a second electrode on opposite sides of an electrolyte layer; forming an insulating layer comprising alumina and frit; disposing the insulating layer adjacent to the second electrode to form a green sensor; and heating the green sensor to a temperature sufficient to sinter the electrolyte layer and the insulating layer.